

## ABSTRACT

The present invention provides a radiosurgery and/or radiotherapy x-ray system including a collision avoidance subsystem for detecting and avoiding obstacles during treatment. The system includes an x-ray source having an emission head at a distal end of an articulated arm assembly extending from a base unit, with the head being adapted for selectively emitting an x-ray beam along a beam axis, and including an associated controller for selectively orienting the head whereby the beam extends along a succession of treatment axes. The system further includes a collision avoidance subsystem including means for preventing the head and arm assembly from effecting a collision with an object in one or more pre-computed exclusion zones.